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PATENT COOPERATION TREATY

PCT/EP2003/010807



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference M 6159 PCT/ng	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/010807	International filing date (day/month/year) 29 September 2003 (29.09.2003)	Priority date (day/month/year) 18 December 2002 (18.12.2002)
International Patent Classification (IPC) or national classification and IPC B22D 11/111		
Applicant REFRATECHNIK HOLDING GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 02 March 2004 (02.03.2004)	Date of completion of this report 09 March 2005 (09.03.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/010807

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages _____, 1, 2, 4-7 _____, as originally filed
pages _____, filed with the demand
pages _____, 3, 3a _____, filed with the letter of _____ 02 March 2004 (02.03.2004)
- ☒ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, 1-22 _____, filed with the letter of _____ 05 August 2004 (05.08.2004)
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☒ the claims, Nos. _____ 23-25 _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP 03/10807

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	4, 5, 7, 11-20	YES
	Claims	1-3, 6, 8-10, 21, 22	NO
Inventive step (IS)	Claims		YES
	Claims	1-22	NO
Industrial applicability (IA)	Claims	1-22	YES
	Claims		NO

2. Citations and explanations

1. Reference is made to the following documents:

D1: K. Schwerdtfeger - Metallurgie des
Stranggiessens, Stahleisen Verlag, Düsseldorf,
1992, pages 233/6

D2: DE-C-3727619

2. Clarity - PCT Article 6

Claim 1 defines a covering means *per se*. In claim 1, features following the word "for" and/or the words "more particularly" are regarded as optional.

The composition of the covering means referred to in claim 1 is not clearly defined, because the constituents and their quantitative ranges are not mentioned. In a claim where the composition is essential to the invention, the composition should be clearly, precisely and fully defined, since the composition has a substantial effect on the intended properties of the covering means.

Claim 1 does not define the lower limit of the other secondary phases (e.g. MgO, TiO₂). These are therefore considered optional.

The word "essentially" in claim 1 is unclear, because it does not exclude the presence of further unknown components.

3. Novelty - PCT Article 33(2)

- 3.1 D1 discloses a granular continuous-casting powder (see table 3.2.1, page 235, examples Y, Z, BL, BLA), the composition of which satisfies the condition $0.25 < (\text{CaO}/\text{Al}_2\text{O}_3) < 4$ and consists "essentially" of CaO, Al_2O_3 (i.e. implicitly calcium aluminate).

D1 also discloses a method for producing granular products (pellets) as defined in claim 8 (see page 236, first paragraph).

The subjects of claims 1-3, 6, 8-10, 21 and 22 are therefore not novel over D1 (PCT Article 33(2)).

- 3.2 D2 describes a covering composition consisting of balls coated with lime and alumina (i.e. implicitly calcium aluminate) (see D2, column 1, lines 55-59). The subjects of claims 1-3 are therefore not novel over D2 (PCT Article 33(2)).

4. Inventive step

The problem defined in the description (see page 3, second paragraph) cannot be solved over the whole range of the *binary* composition $\text{CaO}/\text{Al}_2\text{O}_3$, that is to say, for the $\text{CaO}-\text{Al}_2\text{O}_3$ ratio defined.

Where there are high Al_2O_3 levels in the covering means, the melting points are considered too high

for the formation of a molten slag for good metallurgical processing.

Where there are high CaO levels in the covering means, it will not be possible to form a liquid slag. At a lime saturation with over 60% CaO, no liquid slag suitable for good metallurgical processing is formed.

The description gives only one example (CaO/Al₂O₃ ratio 1.14). The applicant has not therefore demonstrated that the inventive effect is achievable over the whole range claimed.

Only a CaO/Al₂O₃ ratio of 1 to 1.5 for the covering means composition, as preferred in the present claim 1, appears to be able to solve the problem.

Claim 1 covers ranges in which the problem addressed by the application cannot be solved. No inventive step can therefore be acknowledged in respect of claim 1 (PCT Article 33(3)).

5. Dependent claims 4, 5, 7 and 11-20 concern preferred embodiments of the claimed covering means and/or methods. The dependent claims do not appear to contain any additional features which could yield subject matter involving an inventive step.